

sufficiently large so that the stage is capable of being utilized to hold the optical filter to which the first and second filter layers belong. Applicant respectfully submits that Tsuyuki et al and Tada et al., alone or in combination, do not disclose or suggest the combination of features recited in independent claims 2 and 17.

Apparently recognizing that Tsuyuki et al. does not disclose or suggest the claimed optical filter made of first and second filter layers having different sizes, the Office Action relies upon Tada et al. and states:

Tada et al. teaches an optical filter having stepped laminated filter layers having stages formed at the peripheral regions of the optical filter. It is implicitly true or an obvious modification to one skilled in the art that the stages formed by the filter layers, having different radius[sic], would have sizes sufficiently large so that the optical filter may be held within the filter frame for the purpose of securing the optical filter unit with respect to the optical system utilizing the filter.

Applicant respectfully submits that the Office Action relies upon impermissible hindsight when it asserts that features are "implicitly true or in obvious modification to one skilled in the art". There is absolutely no teaching or suggestion in Tada et al. to form a stage from different sized laminated filter layers. One having ordinary skill in the art would be provided with no teaching or motivation from Tada et al. to arrive at the invention recited in independent claims 2 and 17. Clearly the Office Action only arrives at its conclusion based upon reading Applicant's disclosure because there is no mention or even hint of forming a stage as claimed from Tada et al.

As previously argued, Tada et al. discloses that it is known to make an ND filter from laminated filter layers 12-14 having different sizes so as to obtain an apparent F-number larger than the maximum F-number. See, for example, col. 1, lines 10-15 of Tada et al. In Tada et al., the thickness of each circular filter layer 12-14 is extremely small, i.e., a few tenths of a micrometer (see col. 1, lines 22-23). Consequently, the stepped portions of Tada et al. are "microscopic stepped portions" (see, for example, col. 1, line 57 of Tada et al.). Thus, one having ordinary skill in the art is provided with no teaching or suggestion to

provide a stage capable of mounting the filter from Tada et al. The "microscopic stepped portions" of Tada et al. can not be used as a stage, and consequently the invention of claims 2 and 17 is not implicit or obvious from Tada et al.

Moreover since the stepped portions of Tada et al. are not formed to be utilized to hold the filter, and are too small to be utilized to hold the filter, there is no teaching or suggestion to provide the smaller filter layer on the side of the optical system as recited in independent claims 2 and 17.

Accordingly, claims 2 and 17, as well as their dependent claims, are patentable over Tsuyuki et al. and Tada et al.

Independent claim 13 recites that the holding member has a spring property and holds the optical filter by pressing the optical filter either toward the photoelectric converter or toward the optical system. This feature is not disclosed or suggested in Tsuyuki et al. or Tada et al.

In the previous Office Action dated August 14, 2002, it was stated regarding claim 14 (which previously recited this feature) that "Tsuyuki et al. teaches that the filters are held in the filter housing, but the cited references do not teach explicitly that the filter holding housing or member has a spring property. However, using spring means or any other means, such as thread, for holding an optical filter in place are really art-recognized equivalent to one skilled in the art, such modification therefore is considered as obvious matters [sic] of design choice." Again, the Office Action provides no factual support for its conclusion, and relies totally on impermissible hindsight because Applicant's specification is the only teaching of record regarding a holding member having a spring property in the combination of claim 13.


Because Tsuyuki et al. does not disclose filter layers that have different sizes to form a stage, Tsuyuki et al. does not disclose or suggest a holding member that holds an optical filter with a stepped portion, or making such a holding member to have a spring property. Moreover, because the ND filter elements according to Tada et al. are formed on a

transparent substrate by an evaporation process (see, for example, col. 1, lines 16-20), there is no need for a holding member (and particular a holding member having spring property) to hold the ND filter elements to adjacent structure. Accordingly, Tada et al. also does not disclose or suggest the holding member of claim 13.

In view of the foregoing, Applicant respectfully submits that this application is in condition for allowance. Favorable consideration and prompt allowance are earnestly solicited.

Should the Examiner believe that anything further would be desirable to place this application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,



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MAC/ldg

Attachments:  
Appendix  
Request for Continued Examination

Date: April 9, 2003

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## APPENDIX

## Changes to Claims:

Claims 7 and 14 are canceled.

The following is a marked-up version of the amended claims:

2. (Four Times Amended) An optical filter that is provided at an optical path between a photoelectric converter, which converts a subject image formed at a light-receiving surface thereof to an electrical signal, and an optical system which forms the subject image with a light flux from the subject at said photoelectric converter, to filter the light flux, comprising:

a plurality of filter layers that are laminated along a direction of an optical axis of the light flux that passes through the optical filter, the plurality of filter layers including at least a first filter layer and a second filter layer which are laminated with each other, said first filter layer being located at a side of the optical system and said second filter layer being located at a side of said photoelectric converter;

a stage formed at least at a portion of an external circumference of the optical filter by varying a size ~~of a surface~~ of said first filter layer along a direction perpendicular to the optical axis from a size ~~of a surface~~ of said second filter layer along the direction perpendicular to the optical axis, wherein the size of said first filter layer is smaller than the size of said second filter layer and the portion of the external circumference of the optical filter which forms the stage includes a portion of ~~one of the surfaces~~ a surface of the ~~first and second filter layers~~ layer that faces toward said first filter layer and extends in the direction perpendicular to the optical axis; and

the stage having a size that is sufficiently large so that the stage is capable of being utilized to hold the optical filter.

10. (Twice Amended) An optical filter according to claim 2, wherein:

said second filter layer is composed of a material stronger than a strength of a material of said first filter layer;~~and~~

~~————— a size of the surface of said first filter layer is smaller than a size of the surface of said second filter layer.~~

12. (Amended) An optical filter according to claim 2, wherein:

said first filter layer is an infrared-cutting filter and said second filter layer is a  $\frac{1}{4} \lambda$  plate;~~and~~

~~————— a size of the surface of said first filter layer is smaller than a size of the surface of said second filter layer.~~

13. (Twice Amended) An optical device comprising:

a photoelectric converter that converts a subject image formed at a light-receiving surface thereof to an electric signal;

an optical system that forms the subject image with a light flux from a subject at the light-receiving surface of said photoelectric converter;

an optical filter that is provided on an optical path between said photoelectric converter and said optical system to filter the light flux, the optical filter includes a plurality of filter layers that are laminated along a direction of an optical axis of the light flux that passes through the optical filter, the plurality of filter layers including at least a first filter layer and a second filter layer which are laminated with each other, a size of said first filter layer being smaller than a size of said second filter layer along at least one direction perpendicular to the optical axis so that a stepped portion is formed at least at a portion of an external circumference of the optical filter, the stepped portion having a size that is sufficiently large so that the stepped portion is capable of being utilized to hold the optical filter;~~and~~

a holding member that engages a portion of an external circumference of the second filter layer that extends in the direction perpendicular to the optical axis and is located in the stepped portion, so that the holding member holds the optical filter; and

said holding member has a spring property and holds said optical filter by pressing said optical filter either toward said photoelectric converter or toward said optical system.

17. (Amended) An optical device ~~according to claim 13, wherein~~ comprising:  
a photoelectric converter that converts a subject image formed at a light-receiving surface thereof to an electric signal;

an optical system that forms the subject image with a light flux from a subject at the light-receiving surface of said photoelectric converter;

an optical filter that is provided on an optical path between said photoelectric converter and said optical system to filter the light flux, the optical filter includes a plurality of filter layers that are laminated along a direction of an optical axis of the light flux that passes through the optical filter, the plurality of filter layers including at least a first filter layer and a second filter layer which are laminated with each other, said first filter layer is being located at a side closer to the subject than of the optical system and said second filter layer being located at a side of the photoelectric converter, a size of said first filter layer being smaller than a size of said second filter layer along at least one direction perpendicular to the optical axis so that a stepped portion is formed at least at a portion of an external circumference of the optical filter, the stepped portion having a size that is sufficiently large so that the stepped portion is capable of being utilized to hold the optical filter; and

a holding member that engages a portion of an external circumference of the second filter layer that extends in the direction perpendicular to the optical axis and is located in the stepped portion, so that the holding member holds the optical filter.

18. (Amended) An optical device according to claim ~~13~~17, wherein said first filter layer and said second filter layer are pasted to each other.

19. (Amended) An optical device according to claim ~~13~~17, wherein said second filter layer is composed of a material stronger than a strength of a material of said first filter layer.